

CLAIMS

1. A moisture curable composition capable of cure to an elastomeric body, the composition comprising
 - a) An organopolysiloxane having not less than two silicon-bonded hydroxyl or hydrolysable groups;
 - b) A silane substantially having the formula $G_2 - Si - R^1_2$, wherein each group G is the same or different and is reactable with the hydroxyl or hydrolysable groups in (a), and each R^1 independently represents an alkyl group having from 1 to 10 carbon atoms, an alkenyl group, an alkynyl group an aryl group such as phenyl, or a fluorinated alkyl group;
 - c) one or more fillers and
 - d) a photocatalyst;

wherein, when no R^1 group is either an alkenyl or alkynyl group there is provided:-

- e) an unsaturated compound selected from the group of an unsaturated short chain siloxane, an unsaturated cyclic siloxane, an unsaturated fatty acid, an unsaturated fatty alcohol and an unsaturated fatty acid ester.
2. A composition in accordance with claim 1 wherein component (b) comprises one or more alkenyl alkyl dialkoxysilanes, alkenylalkyldioximosilanes, alkenylalkyldiacetoxysilanes, and/or alkenylalkyldihydroxysilanes.
3. A composition in accordance with claim 1 or 2 wherein component (b) is selected from the group vinyl methyl dimethoxysilane, vinyl ethyldimethoxysilane, vinyl methyldiethoxysilane, vinyl ethyldiethoxysilane, vinyl methyl dioximosilane, vinyl ethyldioximosilane, vinyl methyldioximosilane, vinyl ethyldioximosilane, vinyl methyl diacetoxysilane, vinyl ethyldiacetoxysilane, vinyl methyldiacetoxysilane, vinyl ethyldiacetoxysilane, vinyl methyl dihydroxysilane, vinyl

ethyldihydroxysilane, vinyl methyldihydroxysilane and vinyl ethyldihydroxysilane.

4. A composition in accordance with any preceding claim wherein component (c) comprises one or more of fumed silica, calcined silica, precipitated silica, titania, zinc oxide, clay, mica, ground calcium carbonate, precipitated calcium carbonate, magnesium carbonate, quartz, diatomaceous earth, barium sulphate, and calcium sulphate.
5. A composition in accordance with claim 4 wherein component (c) comprises a fatty acid treated precipitated calcium carbonate.
6. A composition in accordance with any preceding claim wherein the photocatalyst (component (d)) is a titanate.
7. A composition in accordance with claim 6 wherein the titanate has the general formula $\text{Ti}[\text{OR}^5]_4$ where each R^5 may be the same or different and represents a monovalent, primary, secondary or tertiary aliphatic hydrocarbon group which may be linear or branched containing from 1 to 10 carbon atoms.
8. A composition in accordance with claim 7 wherein R^5 may be selected from the group of methyl, ethyl, propyl, isopropyl, butyl, tertiary butyl and 2,4-dimethyl-3-pentyl.
9. A moisture curable composition in accordance with any preceding claim wherein component (a) is a linear or substantially linear polydiorganosiloxane having terminal groups selected from $-\text{Si}(\text{R}^2)_2\text{OH}$, and $-\text{Si}(\text{R}^2)_2-(\text{D})_d-\text{R}^3-\text{SiR}^2_k(\text{OR}^4)_{3-k}$;
 where D is $-\text{R}^3-(\text{Si}(\text{R}^2)_2-\text{O})_r-\text{Si}(\text{R}^2)_2-$, R^2 is selected from an alkyl group having from 1 to 6 carbon atoms, a vinyl group, a phenyl group and a fluorinated alkyl group, R^3 is a divalent hydrocarbon group r is a whole number between 1 and 6 and d is 0 or a whole number, R^4 is an alkyl or

- oxyalkyl group in which the alkyl groups have up to 6 carbon atoms and k has the value 0, 1 or 2.
10. A composition in accordance with any preceding claim wherein component (e) comprises an unsaturated organopolysiloxane having a degree of polymerization from 2 to 50 and at least two silicon bonded functional groups, which are reactable with the hydroxy or hydrolysable groups of component (a).
11. A composition in accordance with any preceding claim comprising:
100 parts by weight of component (a)
from 2 to 22 parts by weight of component (b),
from 40 to 180 parts by weight of component (c), and
from 0.3 to 6 parts by weight of component (d).
12. An elastomeric product comprising the moisture cured composition in accordance with any one of claims 1 to 11.
13. A cured sealant consisting of the elastomeric product in accordance with claim 12 having an air-sealant interface surface with a maximum gloss value of 45.
14. Use of a composition in accordance with any one of claims 1 to 11 as a sealant.
15. A method of forming an elastomeric mass between surfaces which is adherent to at least two such surfaces which method comprises introducing between the surfaces a mass of a moisture curable composition in accordance with any one of claims 1 to 11 and curing the composition in the presence of moisture.

AMENDED CLAIMS

[received by the International Bureau on 05 August 2004 (05.08.04);
original claim 1 amended, other claims unchanged]

1. A moisture curable composition capable of cure to an elastomeric body, the composition comprising

- 5 a) An organopolysiloxane having not less than two silicon-bonded hydroxyl or hydrolysable groups;
- b) A silane substantially having the formula $G_2 - Si - R^1_2$, wherein each group G is the same or different and is selected from the group consisting of alkoxy, acetoxy, oxime, and hydroxy groups, and each R^1 independently
- 10 represents an alkyl group having from 1 to 10 carbon atoms, an alkenyl group, an alkynyl group an aryl group such as phenyl, or a fluorinated alkyl group;
- c) one or more fillers and
- d) a photocatalyst;

wherein, when no R^1 group is either an alkenyl or alkynyl group there is provided:-

- 15 e) an unsaturated compound selected from the group of an unsaturated short chain siloxane, an unsaturated cyclic siloxane, an unsaturated fatty acid, an unsaturated fatty alcohol and an unsaturated fatty acid ester.

2. A composition in accordance with claim 1 wherein component (b) comprises one or
- 20 more alkenyl alkyl dialkoxysilanes, alkenylalkyldioximosilanes, alkenylalkyldiacetoxysilanes, and/or alkenylalkyldihydroxysilanes.

3. A composition in accordance with claim 1 or 2 wherein component (b) is selected from the group vinyl methyl dimethoxysilane, vinyl ethyldimethoxysilane, vinyl
- 25 methyldiethoxysilane, vinylethyldiethoxysilane, vinyl methyl dioximosilane, vinyl ethyldioximosilane, vinyl methyldioximosilane, vinylethyldioximosilane, vinyl methyl diacetoxysilane, vinyl ethyldiacetoxysilane, vinyl methyldiacetoxysilane, vinylethyldiacetoxysilane, vinyl methyl dihydroxysilane, vinyl ethyldihydroxysilane, vinyl methyldihydroxysilane and vinylethyldihydroxysilane.

4. A composition in accordance with any preceding claim wherein component (c) comprises one or more of fumed silica, calcined silica, precipitated silica, titania, zinc oxide, clay, mica, ground calcium carbonate, precipitated calcium carbonate, magnesium carbonate, quartz, diatomaceous earth, barium sulphate, and calcium sulphate.
5. A composition in accordance with claim 4 wherein component (c) comprises a fatty acid treated precipitated calcium carbonate.
6. A composition in accordance with any preceding claim wherein the photocatalyst (component (d)) is a titanate.
7. A composition in accordance with claim 6 wherein the titanate has the general formula $Ti[OR^5]_4$ where each R^5 may be the same or different and represents a monovalent, primary, secondary or tertiary aliphatic hydrocarbon group which may be linear or branched containing from 1 to 10 carbon atoms.
8. A composition in accordance with claim 7 wherein R^5 may be selected from the group of methyl, ethyl, propyl, isopropyl, butyl, tertiary butyl and 2,4-dimethyl-3-pentyl.
9. A moisture curable composition in accordance with any preceding claim wherein component (a) is a linear or substantially linear polydiorganosiloxane having terminal groups selected from $-Si(R^2)_2OH$, and $-Si(R^2)_2-(D)_d-R^3-SiR^2_k(OR^4)_{3-k}$; where D is $-R^3-(Si(R^2)_2-O)_r-Si(R^2)_2-$, R^2 is selected from an alkyl group having from 1 to 6 carbon atoms, a vinyl group, a phenyl group and a fluorinated alkyl group, R^3 is a divalent hydrocarbon group r is a whole number between 1 and 6 and d is 0 or a whole number, R^4 is an alkyl or oxyalkyl group in which the alkyl groups have up to 6 carbon atoms and k has the value 0, 1 or 2.
10. A composition in accordance with any preceding claim wherein component (e) comprises an unsaturated organopolysiloxane having a degree of polymerization from

2 to 50 and at least two silicon bonded functional groups, which are reactable with the hydroxy or hydrolysable groups of component (a).

11. A composition in accordance with any preceding claim comprising:

- 5 100 parts by weight of component (a)
 from 2 to 22 parts by weight of component (b),
 from 40 to 180 parts by weight of component (c), and
 from 0.3 to 6 parts by weight of component (d).

10 12. An elastomeric product comprising the moisture cured composition in accordance with any one of claims 1 to 11.

13. A cured sealant consisting of the elastomeric product in accordance with claim 12 having an air-sealant interface surface with a maximum gloss value of 45.

15 14. Use of a composition in accordance with any one of claims 1 to 11 as a sealant.

20 15. A method of forming an elastomeric mass between surfaces which is adherent to at least two such surfaces which method comprises introducing between the surfaces a mass of a moisture curable composition in accordance with any one of claims 1 to 11 and curing the composition in the presence of moisture.